Template for Instrument Statement of Work

General Guidance:

The Statement of Work should be written so that it is clearly understood by the reader, i.e., the contractor who will be performing the work. Language needs to be understandable to both technical and non-technical readers, unambiguous, and clear. The SOW should avoid words that are vague and inexact and which are open to many interpretations. It should use simple words, phrases, and sentences that are well-understood and consistent terminology. Careful and exact descriptions will help avoid misunderstandings and conflicts. Language should be specific, with active words used to describe the work such as "analyze, design, investigate, and fabricate."

Statements of work must: (1) be definitive enough to protect the Government's interests; (2) serve as a basis for contractor response, evaluation or proposals, and source selection; and (3) provide a meaningful measure of performance so both the Government and the contractor know when the work is satisfactorily completed. Performance-based SOWs that require an *outcome* are the preferred type of SOW. The SOW must include performance requirements and verification requirements that are measurable or quantifiable. Descriptions of the work by "form, fit, and function" are considered appropriate for performance-based SOWs. See NPG 5600.2B, *Statement of Work (SOW); Guidance for Writing Work Statements*, December 1997, available at http://www.hq.nasa.gov/office/procurement/newreq1.htm.

The Statement of Work has certain legal criteria. The writer should consult the Office of Chief Counsel, Code 140, for all questions regarding the legality of the statement.

Typically, the government prepares particular documents, such as the Mission Assurance Requirements (MAR), that state contractor requirements. These would be referenced in the Statement of Work. However, occasionally, they may not have been prepared or approved at the time the Statement of Work is written. When this is the case, it may be necessary to state specific requirements that would normally appear in those documents directly in the Statement of Work.

The major categories that that appear in a Statement of Work often mirror those found in a Contractor Work Breakdown Structure.

SUGGESTED FORMAT AND CONTENT OF AN INSTRUMENT STATEMENT OF WORK

Cover or Title Page

All NASA SOWs should contain a title page or cover with the recommended elements. This page provides the name of the instrument being provided and the spacecraft where it will be placed, the date of the SOW and any revision number, and the contract number under which the instrument is being provided.

Sample Title Page

STATEMENT OF WORK FOR

Instrument QRE for Project XYZ

Date

Revision No

Project Name/Code
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND

Change History Log
This section documents the baseline document and all revisions. It should include the Revision Designation (or Baseline), the modification number, the effective date of the change, and the section the change applies to. It is customarily arranged in tabular form.

Revision	Mod Number	Effective Date	Section

Typical Table of Contents for an Instrument SOW

SECTION PAGE

TYPICAL SECTIONS

1.0 INTRODUCTION
This section should briefly describe or state
· The goal of the mission
· How the mission will be accomplished

- The instruments that will reside on the spacecraft
- The function of the instrument relating to this Statement of Work
- The type of data or information expected to be gathered or produced by means of carrying out experiments with this instrument
- How the data will be used.

2.0 SCOPE OF WORK

This section describes the objective of the work or product described in the SOW and how the objective will be accomplished, e.g., design, fabricate, integrate, etc. It should briefly outline the sequence of events that will take place and the required outcome of performing the tasks described in the SOW. If the work described in the SOW involves activities that will take place over more than one stage in the life cycle, this section should delineate the activities or products associated with each stage.

If there are other participants involved in the work effort in addition to the contractor performing the work, they should be named and their role in the work described. Government oversight should be acknowledged.

3.0 APPLICABLE DOCUMENTS

This section lists technical documents that apply to the Statement of Work requirements. In order to be certain that everyone is using the same version of a document, its date and version number or revision number must be stated. A hard copy of all applicable documents must also be made available.

4.0 REQUIREMENTS

This section describes the contractor's responsibilities for the major activities needed to achieve the mission objectives. All activities need to fall within the Scope of Work as described in Section 2.0.

The major categories in this section should correspond to the major categories in the Contractor Work Breakdown Structure. If the wording differs from the Work Breakdown Structure, then the applicable WBS element should be clearly stated. Each element should be broken down into as many sub-activities as necessary to provide a complete description of the items and services that will be provided. Sub-activities will necessarily vary according to the purpose of the instrument and the type of data it gathers and produces.

Typical categories are:

1000 PROJECT MANAGEMENT

This category describes technical and financial administration of the work effort. It should list and describe services and items such as: a schedule for communicating progress; and required meetings, reports, and reviews and who the attendees, recipients or reviewers are; specific plans and reports required and what their content should be; resource requirements.

Typical plans and reports listed in this category will include, but are not limited to, Monthly Technical Progress Reports, Preliminary Design Review Data Package, Critical Design Review Data Package, Pre-Environment Review Data Package, Pre-Shit Review Data Package, Product Assurance Implementation Plan, Configuration Plan, and Final Report.

2000 SYSTEM ENGINEERING

This section describes the technical activities that the contractor will perform. It includes activities such as:

- Writing performance specifications that define performance characteristics.
- Defining the tests and analyses that demonstrate compliance with product assurance requirements
- Preparing engineering drawings of the instrument, subsystems, and components
- Instrument and ground support equipment design
- Developing and fabricating models and documenting all models
- Developing Failure Modes and Effects Analysis
- Providing technical support for mission design, instrument and spacecraft interface, and instrument spacecraft integration and test
- Preparing a verification matrix that summarizes all tests to be performed. Note: this is usually requested in the government-prepared Mission Assurance Report.
- Providing updates to the instrument Interface Control Document
- Providing a detailed physical block diagram of the instrument
- Support for the development of reliability block diagrams and risk assessment (Reliability block diagrams are often done by the contractor.)
- Configuration management

If design changes are a possibility, their handling needs to be described.

3000 HARDWARE

This section describes the products that the contractor will fabricate and deliver. It also describes any supporting documentation or lists that will accompany the products. If limitations are placed on the items to be delivered, they should be noted.

4000 SOFTWARE

This section describes the software plan and the software the contractor will provide in support of instrument fabrication, independent validation and verification (IV&V), and operation. Reviews of software plans and software should also be noted.

5000 GROUND SUPPORT EQUIPMENT (GSE)

This section describes the contractor's responsibility for providing and operating ground support equipment.

6000 ASSEMBLY, INTEGRATION AND VERIFICATION (AIV)

This section describes the contractor's responsibility for assembly, integration, and verification. It should state the equipment and labor that the contractor will provide.

7000 DATA PROCESSING

This section describes the contractor's responsibility for producing data processing plans and products. It should describe the expected data products and who will them at what level (Level 0 – raw data, Level 1 – calibrated data, Level 2 – extracted data, Level 3 – smoothed data)

8000 SPECIAL TASKS

This section should list and describe any special tasks for which the contractor is responsible.

9000 SCIENCE

This section describes the contractor's responsibilities relating to project science. This includes attendance at required science working groups, measurement

requirements with ranges or parameters indicated, and other science responsibilities unique to the instrument.

10000MISSION OPERATIONS

This section describes activities relating to mission operations, including experiment users manuals and instrument technical support during the operations phase.

SCHEDULE OF DELIVERABLES

A Schedule of Deliverables may be included in this section or may be a separate attachment. Any schedule of deliverables should include

- An item number
- A description of the item
- The action required, e.g., whether the item is for review, information, or approval. An addendum should define what is meant by each of these terms and any requirements associated with them such as length of time in which review must take place.
- The quantity required
- When the item is required, i.e., the delivery date or the frequency
- Who each item is to be delivered to and where it should be delivered
- For documents, the form in which it is to be delivered—electronic and/or reproducible hard copy.